

**NORTH RIVER
WBID 0083**

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
P O Box 176
Jefferson City, MO 65102

PREPARED BY:
MEC WATER RESOURCES, INC.
1123 Wilkes Blvd., Ste. 400
Columbia, MO 65201

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	North River
Missouri Water Body Identification (WBID) Number:	83
8-digit HUC: 07110004	County: Knox/shelby
Upstream Legal Description (from Table H):	28,60N, 11W
Downstream Legal Description (from Table H):	HWY 15
Number of sites evaluated	9
List all sites numbers, listed consequently upstream to downstream:	1 - HWY 151 2 - COUNTY RD 375 3 - COUNTY RD 353 4 - COUNTY RD 378 5 - HWY 88 6 - COUNTY RD 142 7 - 250 M DOWNSTREAM LRD 142 8 - 50 M WEST 1ST STREET 9 - 300 M DOWNSTREAM FIRST STREET

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s):	NODDITY WATER
Discharger Permit Number(s):	MO 0102032

IV. UAA Surveyor (please print legibly)

Name of Surveyor	RENEE MARTIN	Telephone Number:	573 443 4100
Organization/Employer:	MEC WATER RESOURCES		
Position:	ENV. SPECIALIST		

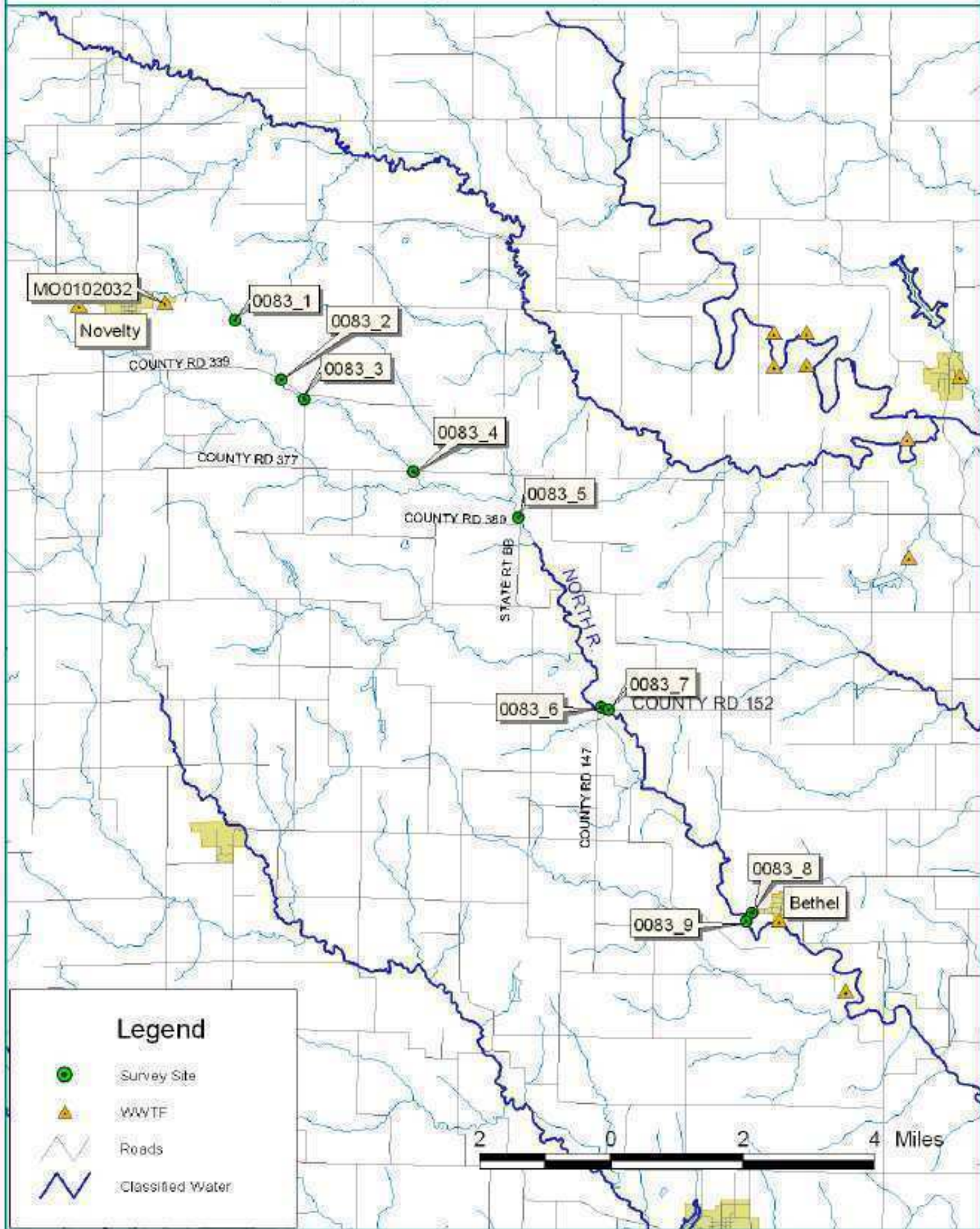
Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Renee Martin Date: 5/18/07

ANC 5-23-07

AK 5/18/07

North River (0083), Length = 16 mi., Permit # MO0102032



WBID# 0083
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07</u> <u>0915</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. MARTIN</u>	<u>HWY 151 - BRIDGE CROSSING</u>
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>NOV6LT4 WWTP</u>
	Permit Number: <u>MO 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0570295</u>		Y: <u>4429020</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 1:100,000 Other <u> </u>	
EPE	± <u>17</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP	<u> </u>		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-1-164</u>	<u>DOWNSTREAM, SITE #1 TRANSECT #1</u> <u>- LIVESTOCK WATERING - FENCE</u>		
<u>0083-1-165</u>	<u>UPSTREAM, SITE #1 TRANSECT #1</u> <u>- FENCE - LIVESTOCK WATERING</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0083
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>50</u> % Sand	<u>—</u> % Silt	<u>50</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Little algae on substrate

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/18/07
Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u>		Site #: <u>0083-1</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>11.0</u> (m) (height between low bank width and water)				Date: <u>5/18/07</u>	Time: <u>0915</u>
GPS Location (taken at transect 1):				Dissolved Oxygen: <u>7.39</u> (mg/L)	
UTM X: <u>0590294</u>		UTM Y: <u>4429020</u>		Dissolved Oxygen: <u>72.3</u> (% sat)	
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>17</u> (feet)				Specific Cond: <u>280.8</u> ($\mu\text{S/cm}$)	
Average Stream Width: <u>2.5</u> (meters)	Length of Survey Segment: <u>150</u> (meters)	Water Temperature: <u>15.5</u> ($^{\circ}\text{C}$)			
Field Staff: <u>R. MARTIN & J. FOTH</u>					

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.0	0.0	0.1	0.3	0.1	0.4	0.1	0.0	0.0	0.3	0.1	0.5	0.1	0.0	0.0	0.4	0.1	0.2	0.1	0.2	0.1
2	0.16	<0.1	0.17	0.2	0.4	0.1	0.5	0.2	0.19	<0.1	0.6	0.1	0.8	0.1	0.12	<0.1	0.8	0.2	0.3	0.1	0.6	0.2
3	0.32	<0.1	0.34	0.3	0.5	0.2	0.6	0.2	0.38		0.9	0.2	1.1	0.1	0.24		1.2	0.2	0.4	0.2	1.0	0.2
4	0.48	<0.1	0.51	0.3	0.6	0.2	0.7	0.2	0.57		1.2	0.2	1.4	0.2	0.36		1.6	0.3	0.5	0.2	1.4	0.3
5	0.64	<0.1	0.68	0.3	0.7	0.2	0.8	0.1	0.76		1.5	0.2	1.7	0.2	0.48		2.0	0.3	0.6	0.2	1.8	0.4
6	0.8	<0.1	0.85	0.3	0.8	0.2	0.9	0.1	0.95		1.8	0.25	2.0	0.1	0.60		2.4	0.3	0.7	0.2	2.2	0.5
7	0.96	<0.1	1.02	0.4	0.9	0.2	1.0	0.1	1.14		2.1	0.3	2.3	0.1	0.72		2.8	0.3	0.8	0.1	2.6	0.5
8	1.12	<0.1	1.19	0.3	1.0	0.1	1.1	0.1	1.33		2.4	0.3	2.6	0.1	0.84		3.2	0.3	0.9	0.1	3.0	0.4
9	1.28	<0.1	1.36	0.2	1.1	0.1	1.2	0.1	1.52		2.7	0.3	2.9	0.1	0.96		3.6	0.2	1.0	0.1	3.4	0.3
10	1.44	<0.1	1.53	0.2	1.2	0.1	1.3	0.1	1.71	↓	3.0	0.2	3.2	0.1	1.08	↓	4.0	0.2	1.1	0.1	3.8	0.2
11	1.6	<0.1	1.7	0.1	1.3	0.1	1.4	0.1	1.9	<0.1	3.3	0.1	3.5	0.1	1.2	<0.1	4.4	0.1	1.2	0.1	4.2	0.1
12	1.6	0.0	1.7	0.0	1.5	0.0	1.8	0.0	1.9	0.0	4.0	0.0	3.8	0.0	1.2	0.0	4.4	0.1	1.9	0.0	4.3	0.0
Feature Type (riffle run, or pool)	Riffle		Run		Run		Run		Riffle		Pool		Run		Riffle		Pool		Run		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Paul Mart Date: 5/18/07
 OUC 5-23-07 AK 5/25/07

WBID# 0083
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07 1000</u>	Site Location Description (e.g., road crossing): <u>COUNTY ROAD 375 BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN + J FOTH</u>	Facility Name: <u>NOVELTY WWTP</u>
Current Weather Conditions: <u>CLEAR</u>	Permit Number: <u>MO 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0571409</u>		Y: <u>4427577</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>14</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-2-168</u>	<u>DOWNSTREAM, SITE #2, TRANSECT #1</u>		
<u>0083-2-169</u>	<u>-LIVESTOCK WATERING - FENCE</u> <u>UPSTREAM, SITE #2, TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0083
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>15</u> % Cobble	<u>15</u> % Gravel	<u>35</u> % Sand	<u>—</u> % Silt	<u>35</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Little algae on cobble at bridge crossing

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Glenn Mart Date of Survey: 5/18/07

Organization: AE Solutions Position: ENV Specialist

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u> Site #: <u>0083-2</u> (WBID_Site#)		Dissolved Oxygen Date: <u>5/18/07</u> Time: <u>1000</u>	
Estimated Channel Incision: <u>21.0</u> (m) (height between low bank width and water)		Dissolved Oxygen: <u>6.87</u> (mg/L)	
GPS Location (taken at transect 1): UTM X: <u>0571409</u> UTM Y: <u>4427577</u>		Dissolved Oxygen: <u>66.8</u> (% sat)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 14</u> (feet)		Specific Cond: <u>297.2</u> (µS/cm)	
Average Stream Width: <u>4.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width)		Water Temperature: <u>28 13.8</u> (°C)	
Field Staff: <u>R. MARTIN ; J. FOTH</u>			

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.2	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1
2	0.4	0.1	0.3	0.1	0.45	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.5	0.3	0.65	0.3	0.5	0.2	0.4	0.2	0.25	0.1
3	0.8	0.1	0.5	0.1	0.9	0.5	0.8	0.4	0.8	0.5	0.6	0.3	0.9	0.5	1.1	0.45	0.9	0.4	0.8	0.4	0.5	0.1
4	1.2	0.1	0.7	0.1	1.35	0.5	1.2	0.45	1.2	0.5	0.8	0.3	1.3	0.7	1.55	0.55	1.3	0.4	1.2	0.3	0.75	0.2
5	1.6	0.1	0.9	0.2	1.8	0.5	1.6	0.5	1.6	0.5	1.0	0.3	1.7	0.7	2.0	0.6	1.7	0.5	1.6	0.3	1.0	0.3
6	2.0	0.1	1.1	0.2	2.25	0.5	2.0	0.5	2.0	0.6	1.2	0.3	2.1	0.7	2.45	0.7	2.1	0.5	2.0	0.3	1.25	0.3
7	2.4	0.1	1.3	0.2	2.7	0.5	2.4	0.3	2.4	0.5	1.4	0.3	2.5	0.7	2.9	0.7	2.5	0.6	2.4	0.3	1.5	0.4
8	2.8	0.1	1.5	0.1	3.15	0.5	2.8	0.3	2.8	0.3	1.6	0.3	2.9	0.6	3.35	0.65	2.9	0.4	2.8	0.3	1.75	0.4
9	3.2	0.1	1.7	0.1	3.6	0.4	3.2	0.3	3.2	0.3	1.8	0.2	3.3	0.4	3.8	0.6	3.3	0.3	3.2	0.2	2.0	0.3
10	3.6	0.1	1.9	0.1	4.05	0.4	3.6	0.2	3.6	0.2	2.0	0.2	3.7	0.3	4.25	0.5	3.7	0.2	3.6	0.1	2.25	0.3
11	4.0	0.1	2.1	0.1	4.5	0.2	4.0	0.1	4.0	0.1	2.2	0.1	4.1	0.1	4.7	0.3	4.1	0.2	4.0	0.1	2.5	0.2
12	4.1	0.0	2.4	0.0	4.5	0.0	4.0	0.0	4.0	0.0	2.5	0.0	4.4	0.0	5.0	0.3	4.1	0.0	4.6	0.0	2.6	0.0
Feature Type (riffle, run, or pool)	Riffle		Run		Pool		Pool		Pool		Run		Pool		Pool		Pool		Pool		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature] Date: 5/18/07

BNC 5-23-07

Ans 5/25/07

WBID# 0083
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07 1050</u>	Site Location Description (e.g., road crossing): <u>COUNTY ROAD 353 BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	Facility Name: <u>NOVELTY WWTP</u>
Current Weather Conditions: <u>CLEAR</u>	Permit Number: <u>MO 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0571968</u>		Y: <u>4427098</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>16</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-3-170</u>	<u>UPSTREAM, SITE #3 TRANSECT #1</u>		
<u>0083-3-171</u>	<u>- LIVESTOCK WATERING - FENCE</u>		
<u>0083-3-171</u>	<u>DOWNSTREAM SITE #3 TRANSECT #1</u>		
<u>0083-3-172</u>	<u>SITE #3 TRANSECT #2</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0083
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input checked="" type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>5</u> % Cobble	<u>10</u> % Gravel	<u>75</u> % Sand	<u>—</u> % Silt	<u>10</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Little algae on bbbble

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/12/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u>		Site #: <u>0083-2</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>21.0</u> (m) (height between low bank width and water)				Date: <u>5/18/02</u>	Time: <u>1050</u>
GPS Location (taken at transect 1): UTM X: <u>0571968</u> UTM Y: <u>4427097</u>				Dissolved Oxygen: <u>5.88</u> (mg/L)	
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>16</u> (feet)				Dissolved Oxygen: <u>58.5</u> (% sat)	
Average Stream Width: <u>4.5</u> (meters)	Length of Survey Segment: <u>150</u> (meters) (20x average stream width)			Specific Cond: <u>306.2</u> ($\mu\text{S/cm}$)	
Field Staff: <u>R. MARTIN & J. FOTH</u>				Water Temperature: <u>14.7</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	0.0	0.0	0.3	0.1	0.2	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.1
2	0.5	0.5	0.25	<0.1	1.0	0.2	0.6	0.2	0.8	0.2	0.5	0.2	0.5	0.2	0.6	0.2	0.6	0.3	0.6	0.2	0.8	0.2
3	0.9	0.7	0.5	0.1	1.7	0.3	1.0	0.3	1.2	0.2	0.9	0.3	0.9	0.3	1.1	0.3	1.1	0.5	1.0	0.4	1.2	0.2
4	1.3	0.7	0.75	0.1	2.4	0.2	1.4	0.45	1.6	0.3	1.3	0.3	1.3	0.4	1.6	0.5	1.6	0.6	1.4	0.4	1.6	0.2
5	1.7	0.6	1.0	<0.1	3.1	0.2	1.8	0.5	2.0	0.3	1.7	0.4	1.7	0.4	2.1	0.6	2.1	0.6	1.8	0.4	2.0	0.3
6	2.1	0.7	1.25	<0.1	3.8	0.4	2.2	0.3	2.4	0.4	2.1	0.5	2.1	0.5	2.6	0.6	2.6	0.5	2.2	0.3	2.4	0.3
7	2.5	0.6	1.5	<0.1	4.5	0.7	2.6	0.5	2.8	0.3	2.5	0.5	2.5	0.5	3.1	0.5	3.1	0.5	2.6	0.3	2.8	0.3
8	2.9	0.5	1.75	<0.1	5.2	0.6	3.0	0.4	3.2	0.3	2.9	0.4	2.9	0.5	3.6	0.5	3.6	0.4	3.0	0.2	3.2	0.3
9	3.3	0.3	2.0	<0.1	5.9	0.4	3.4	0.3	3.6	0.2	3.3	0.3	3.3	0.4	4.1	0.4	4.1	0.3	3.4	0.2	3.6	0.3
10	3.7	0.3	2.25	<0.1	6.4	0.2	3.8	0.3	4.0	0.2	3.7	0.3	3.7	0.3	4.6	0.2	4.6	0.2	3.8	0.2	4.0	0.2
11	4.1	0.2	2.5	<0.1	7.3	0.1	4.2	0.10	4.4	0.1	4.1	0.1	4.1	0.1	5.1	0.1	5.1	0.1	4.2	0.1	4.4	0.1
12	5.5	0.0	2.5	0.0	7.3	0.1	4.5	0.0	4.8	0.0	4.4	0.0	5.0	0.0	5.6	0.0	5.3	0.0	4.5	0.0	4.8	0.0
Feature Type (rifle run, or pool)	Pool		Rifle		Run/Pool		Pool		Pool		Pool		Pool		Pool		Pool		Run		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Amie Mart Date: 5/18/07
ARC 5-23-07 CAK 5/25/07

WBID# 0083
 Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Date & Time: <u>5/18/07 1245</u>	Site Location Description (e.g., road crossing): <u>COUNTY ROAD 378 BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R MARTIN + J FOIT</u>	Facility Name: <u>NOVELTY WWTP</u>
Current Weather Conditions: <u>CLEAR</u>	Permit Number: <u>MO 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>574656</u>		Y: <u>4425324</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>23</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-4-173</u>	<u>UPSTREAM SITE #1 TRANSECT #1</u>		
<u>0083-4-174</u>	<u>DOWNSTREAM SITE #4 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0083
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>5</u> % Cobble	<u>5</u> % Gravel	<u>45</u> % Sand	<u>—</u> % Silt	<u>45</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

little - No algae on cobble/gravel

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/18/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>00B3</u>		Site #: <u>00B3-4</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u><1.0</u> (m) (height between low bank width and water)		GPS Location (taken at transect 1): UTM X: <u>0574656</u> UTM Y: <u>7425324</u>		Date: <u>5/18/07</u>	Time: <u>1245</u>
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 23</u> (feet)				Dissolved Oxygen: <u>7.7</u> (mg/L)	
Average Stream Width: <u>4.0</u> (meters)		Length of Survey Segment: <u>150</u> (meters) (20x average stream width)		Dissolved Oxygen: <u>78.6</u> (% sat)	
Field Staff: <u>RENEE MARTIN & JUSTYN FOTH</u>				Specific Cond: <u>363.4</u> ($\mu\text{S/cm}$)	
				Water Temperature: <u>16.7</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.8	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.4	0.1	0.0	0.0	0.1	0.1
2	0.95	0.2	0.5	0.1	0.6	0.4	0.65	0.1	0.45	0.2	0.4	0.2	0.35	0.2	0.6	0.2	0.75	0.2	0.17	<0.1	0.5	0.1
3	1.1	0.1	0.8	0.1	1.1	0.5	1.1	0.2	0.8	0.3	0.6	0.2	0.6	0.3	1.0	0.2	1.1	0.3	0.34	<0.1	0.9	0.3
4	1.25	0.1	1.1	0.1	1.6	0.6	1.55	0.2	1.15	0.3	0.8	0.3	0.85	0.3	1.4	0.2	1.45	0.4	0.51	0.1	1.3	0.3
5	1.4	0.1	1.4	0.1	2.1	0.6	2.0	0.2	1.5	0.4	1.0	0.3	1.1	0.3	1.8	0.2	1.8	0.5	0.68	0.2	1.7	0.2
6	1.55	0.1	1.7	<0.1	2.6	0.5	2.45	0.2	1.85	0.4	1.2	0.3	1.35	0.3	2.2	0.3	2.15	0.5	0.85	0.1	2.1	0.2
7	1.7	0.1	2.0	<0.1	3.1	0.4	2.9	0.2	2.2	0.3	1.4	0.3	1.6	0.2	2.6	0.3	2.5	0.4	1.02	<0.1	2.5	0.2
8	1.85	0.1	2.3	0.1	3.6	0.3	3.35	0.3	2.55	0.3	1.6	0.3	1.85	0.2	3.0	0.2	2.85	0.4	1.19	<0.1	2.9	0.2
9	2.0	0.1	2.6	0.1	4.1	0.3	3.8	0.3	2.9	0.2	1.8	0.2	2.1	0.1	3.4	0.2	3.2	0.2	1.36	<0.1	3.3	0.2
10	2.15	0.1	2.9	0.1	4.6	0.2	4.25	0.2	3.25	0.2	2.0	0.2	2.35	0.1	3.8	0.2	3.55	0.1	1.53	<0.1	3.7	0.1
11	2.3	0.1	3.2	0.1	5.1	0.1	4.7	0.1	3.6	0.1	2.2	0.1	2.6	0.1	4.2	0.1	3.9	0.1	1.7	<0.1	4.1	0.1
12	2.5	0.0	3.3	0.0	5.2	0.0	5.1	0.0	4.0	0.0	3.0	0.0	3.0	0.0	4.5	0.0	4.2	0.0	1.7	0.0	4.2	0.0
Feature Type (riffle run, or pool)	RUN		RUN		POOL		RUN		RUN		RUN		RUN		RUN		POOL		RIFFLE		RUN	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

OK 5/25/07

WBID# 0083
 Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07</u> <u>1330</u>	Site Location Description (e.g., road crossing): <u>HWY BB BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	Facility Name: <u>NOVELTY WWTP</u>
Current Weather Conditions: <u>CLEAR</u>	Permit Number: <u>MD 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0577198</u>		Y: <u>4424199</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 <input checked="" type="checkbox"/> 1:100,000 <input checked="" type="checkbox"/> Other <input checked="" type="checkbox"/>	
EPE	± <u>16</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP	<u> </u>		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-5-175</u>	<u>UPSTREAM, SITE #5 TRANSECT #1</u>		
<u>0083-5-176</u>	<u>DOWN STREAM SITE #5 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0083
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	<u>100</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/18/07

Organization: AESolutions Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u>	Site #: <u>0083-5</u> (WBID, Site#)	Dissolved Oxygen	
Estimated Channel Incision: <u><1.0</u> (m) (height between low bank width and water)		Date: <u>5/18/07</u>	Time: <u>1330</u>
GPS Location (taken at transect 1): UTM X: <u>0577198</u> UTM Y: <u>4424199</u>		Dissolved Oxygen: <u>5.96</u> (mg/L)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 16</u> (feet)		Dissolved Oxygen: <u>62.8</u> (% sat)	
Average Stream Width: <u>8</u> (meters) Length of Survey Segment: <u>160</u> (meters) (20x average stream width)		Specific Cond: <u>358.0</u> (µS/cm)	
Field Staff: <u>RENEE MARTIN + JUSTYN FOTH</u>		Water Temperature: <u>16.9</u> (°C)	

Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
Measurement	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.2	0.0	0.2	0.0	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.1
2	1.2	>1.0	1.2	0.6	1.2	0.4	0.85	0.4	0.75	0.3	0.8	0.6	0.4	0.5	0.5	0.5	1.5	0.3	0.8	0.3	0.9	0.2
3	2.4	>1.0	2.4	1.0	2.4	0.8	1.6	0.7	1.5	0.6	1.6	1.0	0.8	>1.0	0.9	>1.0	2.8	0.4	1.6	0.4	1.6	0.3
4	3.6	>1.0	3.6	>1.0	3.6	>1.0	2.35	>1.0	2.25	0.6	2.4	>1.0	1.2	>1.0	1.3	>1.0	4.1	0.4	2.4	0.5	2.3	0.4
5	4.8	>1.0	4.8	>1.0	4.8	>1.0	3.1	>1.0	3.0	1.0	3.2	>1.0	1.6	>1.0	1.7	1.0	5.4	0.2	3.2	0.9	3.0	0.4
6	6.0	>1.0	6.0	>1.0	6.0	>1.0	3.85	0.9	3.75	>1.0	4.0	>1.0	2.0	0.6	2.1	0.8	6.7	0.0	4.0	0.8	3.7	0.3
7	7.2	>1.0	7.2	>1.0	7.2	>1.0	4.6	0.7	4.5	>1.0	4.8	>1.0	2.4	0.4	2.5	0.6	8.0	0.0	4.8	1.0	4.4	0.3
8	8.4	>1.0	8.4	>1.0	8.4	>1.0	5.35	0.5	5.25	>1.0	5.6	>1.0	2.8	0.4	2.9	0.2	9.3	0.3	5.6	>1.0	5.1	0.4
9	9.6	>1.0	9.6	0.7	9.6	0.9	6.1	0.5	6.0	>1.0	6.4	1.0	3.2	0.4	3.3	0.2	10.6	>1.0	6.4	>1.0	5.8	0.4
10	10.8	>1.0	10.8	0.4	10.8	0.5	6.85	0.3	6.75	0.7	7.2	0.8	3.6	0.3	3.7	0.2	11.9	>1.0	7.2	0.8	6.5	0.4
11	12.0	>1.0	12.0	0.1	12.0	0.1	7.6	0.1	7.5	0.3	8.0	0.3	4.0	0.1	4.1	0.1	13.2	0.6	8.0	0.6	7.2	0.1
12	12.0	0.0	12.0	0.0	12.4	0.0	7.8	0.0	8.0	0.0	8.1	0.0	4.5	0.0	4.3	0.0	13.2	0.0	8.4	0.0	7.4	0.0
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renee Martin Date: 5/18/07
PMC 5-23-07 OK 5/25/07

WBID# 0983
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07 1445</u>	Site Location Description (e.g., road crossing): <u>COUNTY RD 142 LOW WATER CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN + J FOTH</u>	Facility Name: <u>NOVELTY WWTF</u>
Current Weather Conditions: <u>CLEAR</u>	Permit Number: <u>MO D102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>579203</u>		Y: <u>4419565</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>26</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-WT7</u>	<u>UPSTREAM; SITE # 6 TRANSECT #1</u> <u>- ROAD CROSSING</u>		
<u>0083-V-178</u>	<u>DOWN STREAM SITE # 4 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Gravel Rd Crossing</u>				

WBID# 0083
Site# # 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>10</u> % Cobble	<u>10</u> % Gravel	<u>80</u> % Sand	<u> </u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None Present

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/18/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u> Site #: <u>0083-6</u> <small>(WBID_Site#)</small>						Dissolved Oxygen			
Estimated Channel Incision: <u><1</u> (m) (height between low bank width and water)						Date:	<u>5/18/07</u>	Time:	<u>1445</u>
GPS Location (taken at transect 1): UTM X: <u>599203</u> UTM Y: <u>4419565</u> Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>26</u> (feet)						Dissolved Oxygen: <u>7.56</u> (mg/L)			
						Dissolved Oxygen: <u>79.6</u> (% sat)			
Average Stream Width: <u>5.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) <small>(20x average stream width)</small>						Specific Cond: <u>299.5</u> ($\mu\text{S/cm}$)			
Field Staff: <u>RENEE MARTIN & JUSTYN FOH</u>						Water Temperature: <u>17.7</u> ($^{\circ}\text{C}$)			

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	0.5	0.1	0.7	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2	0.55	0.1	1.35	0.2	1.2	0.2	0.5	0.1	0.55	0.1	0.85	0.2	0.9	0.3	0.85	0.2	0.7	0.1	0.5	0.3	0.6	0.5
3	1.0	0.1	2.2	0.3	1.7	0.2	0.9	0.2	0.9	0.2	1.4	0.3	1.5	0.4	1.5	0.2	1.3	0.3	0.9	0.3	1.1	0.6
4	1.45	0.1	3.05	0.3	2.2	0.1	1.3	0.2	1.25	0.2	1.95	0.4	2.1	0.5	2.15	0.3	1.9	0.4	1.3	0.4	1.6	0.6
5	1.9	0.1	3.9	0.2	2.7	0.1	1.7	0.2	1.6	0.3	2.5	0.3	2.7	0.5	2.8	0.4	2.5	0.4	1.7	0.4	2.1	0.7
6	2.35	0.1	4.75	0.3	3.2	0.2	2.1	0.2	1.95	0.2	3.05	0.3	3.3	0.5	3.45	0.3	3.1	0.4	2.1	0.4	2.6	0.6
7	2.8	0.1	5.6	0.3	3.7	0.2	2.5	0.2	2.3	0.2	3.6	0.3	3.9	0.5	4.1	0.4	3.7	0.4	2.5	0.3	3.1	0.6
8	3.25	0.1	6.45	0.4	4.2	0.3	2.9	0.2	2.65	0.2	4.15	0.2	4.5	0.5	4.75	0.4	4.3	0.6	2.9	0.2	3.6	0.5
9	3.7	0.1	7.3	0.5	4.7	0.3	3.3	0.2	3.0	0.2	4.7	0.2	5.1	0.4	5.4	0.3	4.9	0.5	3.3	0.2	4.1	0.4
10	4.15	0.1	8.15	0.4	5.2	0.2	3.7	0.1	3.35	0.2	5.25	0.2	5.7	0.3	6.05	0.3	5.5	0.4	3.7	0.1	4.6	0.2
11	4.6	0.1	9.0	0.3	5.7	0.1	4.1	0.1	3.7	0.1	5.8	0.1	6.3	0.1	6.7	0.1	6.1	0.3	4.1	0.1	5.1	0.1
12	4.7	0.0	9.0	0.3	6.1	0.0	4.3	0.0	4.3	0.0	6.4	0.0	6.9	0.0	6.8	0.0	6.2	0.3	4.2	0.0	5.3	0.0
Feature Type (riffle, run, or pool)	Riffle		Pool		Pool		Run		Run		Run		Pool ^{run}		Run		Run		Run		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: James Hunt

Date: 5/8/02

2
COK 5/25/57

WBID# 0083
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07 1530</u>	Site Location Description (e.g., road crossing): <u>Begin where Trib comes in</u>
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	<u>~ 250 meters From Transect #1, Site #6</u>
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>NOVELTY WWTF</u>
	Permit Number: <u>MD 0102632</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>599405</u>		Y: <u>4419499</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>24</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-7-179</u>	<u>UPSTREAM; SITE #7 TRANSECT #1</u>		
<u>0083-7-180</u>	<u>DOWNSTREAM SITE #7 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

WBID# 0083
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>10</u> % Cobble	<u>10</u> % Gravel	<u>80</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/18/07

Organization: ARE SOLUTIONS Position: RNV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u>	Site #: <u>0083-7</u> (WBID_Site#)	Dissolved Oxygen Date: <u>5/18/07</u> Time: <u>1530</u>
Estimated Channel Incision: <u>41.0</u> (m) (height between low bank width and water)		Dissolved Oxygen: <u>7.63</u> (mg/L)
GPS Location (taken at transect 1): UTM X: <u>0579405</u> UTM Y: <u>4419499</u>		Dissolved Oxygen: <u>80.5</u> (% sat)
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 24</u> (feet)		Specific Cond: <u>314.6</u> ($\mu\text{S/cm}$)
Average Stream Width: <u>5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width)		Water Temperature: <u>17.7</u> ($^{\circ}\text{C}$)
Field Staff: <u>RENEE MARTIN + JUSTYN FOTH</u>		

Transect Cross-Section

Measurement		01		02		03		04		05		06		07		08		09		10		11			
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)		
1		0.3	0.1	0.0	0.1	0.1	0.1	0.4	0.1	0.0	0.5	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	
2		0.75	0.1	0.25	0.2	0.55	0.4	0.8	0.2	0.55	0.7	0.6	0.5	0.4	0.2	0.5	0.1	0.6	0.3	0.65	0.5	0.75	0.3		
3		1.2	0.1	0.5	0.2	1.0	0.6	1.2	0.2	1.1	0.8	1.1	0.6	0.7	0.2	0.8	0.2	1.1	0.5	1.2	0.6	1.2	0.4		
4		1.65	0.2	0.75	0.3	1.45	0.8	1.6	0.3	1.65	>1.0	1.6	0.8	1.0	0.2	1.1	0.2	1.6	0.6	1.75	0.7	1.65	0.3		
5		2.1	0.2	1.0	0.3	1.9	0.6	2.0	0.4	2.2	>1.0	2.1	1.0	1.3	0.2	1.4	0.3	2.1	0.6	2.3	0.7	2.1	0.5		
6		2.55	0.1	1.25	0.3	2.35	0.5	2.4	0.3	2.75	>1.0	2.6	0.9	1.6	0.3	1.7	0.2	2.6	0.5	2.85	0.7	2.55	0.5		
7		3.0	0.1	1.5	0.3	2.8	0.3	2.8	0.4	3.3	>1.0	3.1	0.7	1.9	0.2	2.0	0.2	3.1	0.5	3.4	0.7	3.0	0.6		
8		3.45	0.1	1.75	0.2	3.25	0.2	3.2	0.3	3.85	>1.0	3.6	0.5	2.2	0.2	2.3	0.3	3.6	0.5	3.95	0.7	3.45	0.7		
9		3.9	0.1	2.0	0.2	3.7	0.2	3.6	0.2	4.4	1.0	4.1	0.4	2.5	0.2	2.6	0.2	4.1	0.6	4.5	0.5	3.9	0.5		
10		4.35	0.1	2.25	0.2	4.15	0.1	4.0	0.1	4.95	0.7	4.6	0.5	2.8	0.1	2.9	0.2	4.6	0.3	5.05	0.3	4.35	0.3		
11		4.8	0.1	2.5	0.1	4.6	0.1	4.4	0.1	5.5	0.2	5.1	0.1	3.1	0.1	3.2	0.1	5.1	0.1	5.6	0.1	4.8	0.1		
12		5.2	0.0	2.7	0.0	4.8	0.0	4.5	0.0	5.8	0.2	5.6	0.0	3.1	0.0	3.8	0.0	5.1	0.1	5.7	0.0	5.0	0.0		
Feature Type (rifle, run, or pool)		RIFLE		RUN		POOL		RUN		POOL		POOL		RUN		RUN		POOL		POOL		POOL			

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Donna Malt Date: 5/18/07
BWC 5-23-07 JHC 5/25/07

WBID# 0083
 Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07 1630</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	<u>FIRST STREET - BETHEL, MO</u>
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>NOVELTY WWTP</u>
	Permit Number: <u>MO 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0582899</u>		Y: <u>4414517</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>45</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-8-181</u>	<u>DOWNSTREAM SITE #8 TRANSECT #1</u>		
<u>0083-8-182</u>	<u>UPSTREAM SITE #8 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Home nearby</u>				

WBID# 0083
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>20</u> % Cobble	<u>—</u> % Gravel	<u>80</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>Algae on substrate w/in RIFFLE</u>

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Amie Mark Date of Survey: 5/18/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

General Information		Dissolved Oxygen	
Waterbody ID: <u>0083</u>	Site #: <u>0083 - 8</u> (WBID_Site#)	Date: <u>5/18/07</u>	Time: <u>1630</u>
Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water)		Dissolved Oxygen: <u>7.0</u> (mg/L)	
GPS Location (taken at transect 1):		Dissolved Oxygen: <u>73.5</u> (% sat)	
UTM X: <u>0582899</u>	UTM Y: <u>4414517</u>	Specific Cond: <u>303.3</u> (µS/cm)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 45</u> (feet)		Water Temperature: <u>17.6</u> (°C)	
Average Stream Width: <u>10</u> (meters)	Length of Survey Segment: <u>200</u> (meters) (20x average stream width)		
Field Staff: <u>R. Martin & J. Foth</u>			

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	2.8	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0.5	0.1	0.0	0.1	0.2	0.1
2	0.8	0.1	3.2	0.1	1.3	0.4	1.3	0.4	1.0	0.3	^{nm} 1.0	0.2	1.3	0.5	1.15	0.2	0.9	0.2	1.1	0.6	1.4	0.6
3	1.5	0.1	3.6	0.1	2.4	0.4	2.4	0.3	2.0	0.3	1.9	0.3	2.3	0.5	2.0	0.3	1.3	0.2	2.2	0.6	2.6	1.0
4	2.2	0.1	4.0	0.2	3.5	0.3	3.5	0.4	3.0	0.3	2.8	0.3	3.3	0.5	2.85	0.3	1.7	0.2	3.3	0.6	3.8	>1.0
5	2.9	0.1	4.4	0.2	4.6	0.4	4.6	0.4	4.0	0.4	3.7	0.3	4.3	0.3	3.7	0.3	2.1	0.2	4.4	0.5	5.0	>1.0
6	3.6	0.1	4.8	0.2	5.7	0.4	5.7	0.4	5.0	0.4	4.6	0.4	5.3	0.3	4.55	0.3	2.5	0.2	5.5	0.6	6.2	>1.0
7	4.3	0.1	5.2	0.2	6.8	0.4	6.8	0.4	6.0	0.4	5.5	0.4	6.3	0.3	5.4	0.3	2.9	0.2	6.6	0.7	7.4	>1.0
8	5.0	0.1	5.6	0.2	7.9	0.4	7.9	0.5	7.0	0.4	6.4	0.3	7.3	0.3	6.25	0.3	3.3	0.3	7.7	0.7	8.6	>1.0
9	5.7	0.1	6.0	0.2	9.0	0.4	9.0	0.4	8.0	0.3	7.3	0.3	8.3	0.2	7.1	0.2	3.7	0.2	8.8	0.6	9.8	>1.0
10	6.4	0.1	6.4	0.2	10.1	0.3	10.1	0.3	9.0	0.3	8.2	0.3	9.3	0.1	7.95	0.1	4.1	0.2	9.9	0.4	11.0	1.0
11	7.1	0.1	6.8	0.1	11.2	0.1	11.2	0.2	10.0	0.2	9.1	0.2	10.3	0.1	8.8	0.1	4.5	0.1	11.0	0.2	12.2	0.1
12	^{nm} 7.9	0.0	7.0	0.0	12.1	0.0	11.5	0.0	10.1	0.0	9.1	0.2	10.5	0.0	9.6	0.0	4.7	0.0	11.0	0.2	12.4	0.0
Feature Type (riffle, run, or pool)	Riffle		Run		Pool		Pool		Pool		Pool		Pool		Pool		Run		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

BWC 5-23-07

PAIC 5/25/07

WBID# 0083
 Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/18/07 1700</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	<u>~ 300 Meters from First Street, SITE # 8</u>
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>NOVELTY WWTP</u>
	Permit Number: <u>MO 0102032</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0582744</u>		Y: <u>4414314</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 1:100,000 Other <u> </u>	
EPE	± <u>19</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP	<u> </u>		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0083-9-183</u>	<u>UPSTREAM SITE#9 TRANSECT #1</u>		
<u>0083-9-184</u>	<u>DOWNSTREAM SITE#9 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0083
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>25</u> % Cobble	<u>—</u> % Gravel	<u>75</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on Substrate - fair amt

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/18/07

Organization: AE Solutions Position: ENV. Specialist

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0083</u> Site #: <u>0083-9</u> (WBID Site#) Estimated Channel Incision: <u>41</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>058273344</u> UTM Y: <u>4414295</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 62m</u> (feet) Average Stream Width: <u>12</u> (meters) Length of Survey Segment: <u>240</u> (meters) (20x average stream width) Field Staff: <u>RENEE MARTIN & JUSTYN FOTH</u>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Dissolved Oxygen</th> </tr> <tr> <td>Date: <u>5/19/07</u></td> <td>Time: <u>1700</u></td> </tr> <tr> <td>Dissolved Oxygen: <u>7.30</u> (mg/L)</td> <td></td> </tr> <tr> <td>Dissolved Oxygen: <u>77.9</u> (% sat)</td> <td></td> </tr> <tr> <td>Specific Cond: <u>320</u> (µS/cm)</td> <td></td> </tr> <tr> <td>Water Temperature: <u>18.2</u> (°C)</td> <td></td> </tr> </table>	Dissolved Oxygen		Date: <u>5/19/07</u>	Time: <u>1700</u>	Dissolved Oxygen: <u>7.30</u> (mg/L)		Dissolved Oxygen: <u>77.9</u> (% sat)		Specific Cond: <u>320</u> (µS/cm)		Water Temperature: <u>18.2</u> (°C)	
Dissolved Oxygen													
Date: <u>5/19/07</u>	Time: <u>1700</u>												
Dissolved Oxygen: <u>7.30</u> (mg/L)													
Dissolved Oxygen: <u>77.9</u> (% sat)													
Specific Cond: <u>320</u> (µS/cm)													
Water Temperature: <u>18.2</u> (°C)													

Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
Measurement	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1
2	0.0	0.3	1.0	0.3	1.2	0.3	0.65	0.2	1.1	0.6	1.3	0.6	1.3	0.6	1.3	0.3	1.5	0.6	1.5	0.5	1.6	0.5
3	1.9	0.4	1.8	0.4	2.3	0.3	1.2	0.3	2.1	0.6	2.4	0.6	2.6	0.6	2.6	0.3	2.9	0.7	3.0	0.6	3.1	0.5
4	2.8	0.4	2.6	0.5	3.4	0.2	1.75	0.3	3.1	0.6	3.5	0.7	3.9	0.5	3.9	0.3	4.3	0.6	4.5	0.7	4.6	0.4
5	3.7	0.3	3.4	0.5	4.5	0.3	2.3	0.3	4.1	0.5	4.6	0.7	5.2	0.5	5.2	0.4	5.7	0.5	6.0	0.7	6.1	0.5
6	4.6	0.3	4.2	0.5	5.6	0.3	2.85	0.2	5.1	0.5	5.7	0.7	6.5	0.5	6.5	0.4	7.1	0.5	7.5	0.6	7.6	0.4
7	5.5	0.2	5.0	0.5	6.7	0.2	3.4	0.2	6.1	0.6	6.8	0.6	7.8	0.5	7.8	0.4	8.5	0.5	9.0	0.5	9.1	0.3
8	6.4	0.2	5.8	0.4	7.8	0.2	3.95	0.2	7.1	0.5	7.9	0.6	9.1	0.4	9.1	0.4	9.9	0.5	10.5	0.5	10.6	0.3
9	7.3	0.1	6.6	0.4	8.9	0.1	4.5	0.2	8.1	0.4	9.0	0.5	10.4	0.4	10.4	0.3	11.3	0.5	12.0	0.4	12.1	0.3
10	8.2	0.1	7.4	0.2	10.6	0.1	5.05	0.1	9.1	0.3	10.1	0.5	11.7	0.3	11.7	0.3	12.7	0.4	13.5	0.4	13.6	0.1
11	9.1	0.1	8.2	0.1	11.1	0.1	5.6	0.1	10.1	0.1	11.2	0.1	13.0	0.1	13.0	0.1	14.1	0.1	15.0	0.1	15.1	0.1
12	9.2	0.0	9.3	0.0	11.3	0.0	7.8	0.0	11.5	0.0	11.4	0.0	13.1	0.0	13.6	0.0	14.5	0.0	15.2	0.0	15.8	0.0
Feature Type (riffle, run, or pool)	Run		Pool/Run		Run		Run		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renee Martin

Date: 6/18/07

205/25/07

WBID# 0083



Site# 1 Photo ID# 0083-1-164



Site# 1 Photo ID# 0083-1-165

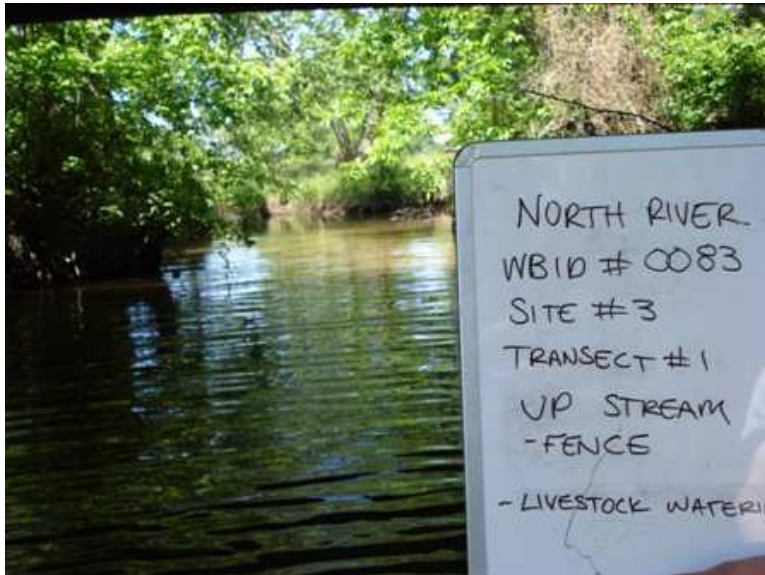


Site# 2 Photo ID# 0083-2-168



Site# 2 Photo ID# 0083-2-169

WBID# 0083



Site# 3 Photo ID# 0083-3-170



Site# 3 Photo ID# 0083-3-171

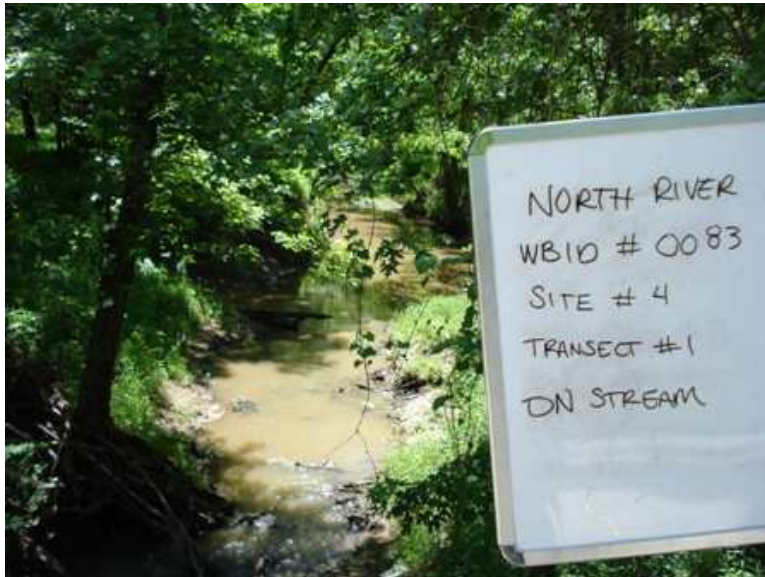


Site# 3 Photo ID# 0083-trackssite3-172



Site# 4 Photo ID# 0083-4-173

WBID# 0083



Site# 4 Photo ID# 0083-4-174



Site# 5 Photo ID# 0083-5-175

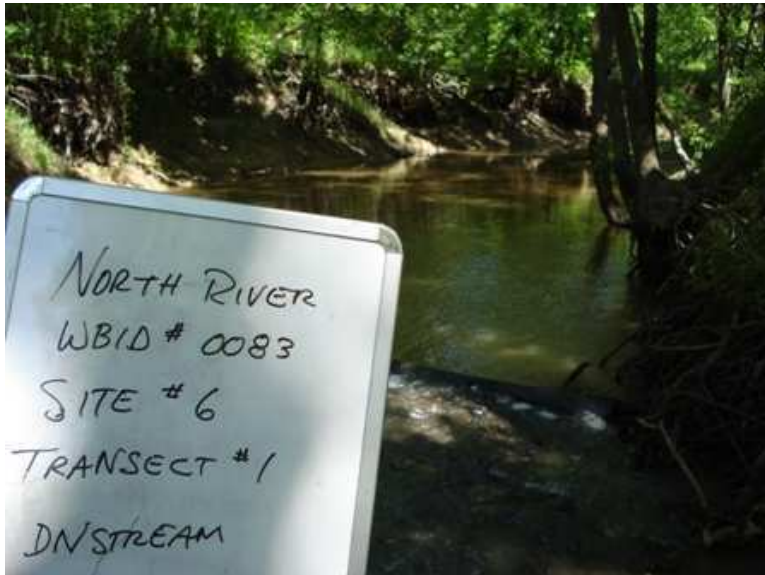


Site# 5 Photo ID# 0083-5-176



Site# 6 Photo ID# 0083-6-177

WBID# 0083



Site# 6 Photo ID# 0083-6-178



Site# 7 Photo ID# 0083-7-179



Site# 7 Photo ID# 0083-7-180



Site# 8 Photo ID# 0083-8-181

WBID# 0083



Site# 8 Photo ID# 0083-8-182



Site# 9 Photo ID# 0083-9-183



Site# 9 Photo ID# 0083-9-184